## MAGNETIC POLES

In a Constant State of Motion Along a Spiral Curve.

EARTH'S MAGNETIC PHASES

Sun's Vertical Rays Form an Electrical Helix.

DIP AND SWING

If All Factors Were Equal Would Indicate Position of an

## By Edwin Fairfax Naulty.

are other perturbations of a freely suspended magnetized needle or bar, the nost important of which is deviation. Deviation is due to local causes, while declination or dip, and variation or swing, are due to remote causes. Into these remote causes we will examine and see if we can find a satisfactory explanation

If the geographical and magnetic poles coincided, and if magnetic exertion were evenly disposed over the earth, or through it, or around it, the compass needle would equator; there would be no variation, or swing to the east or west, and the mariner's compass would indicate latitude with precision, since a scale could be arranged to show by the degrees of declination. But the magnetic and geographical poles do not now agree. Roald Amundsen, the Norse explorer,

who made the lower arctic passage and sailed around the North American continent: Chetwynd, the famous English magnetician; Littlehales, the equally able American, and the charts issued by the American, British, French and German governments do not agree about the preise location of the north magnetic pole. An average of the views places it at about 93 west longitude and about 72 degrees north latitude and gives it location in Boothia, an island or peninsula in the arctic, 18 degrees from the north geothe magnetic needle." or in Littlehales' "Contributions to Terrestrial Magnetism," is the precise point or location of the north magnetic pole shown Chetwynd, lacking the scientific caution of Littlehales, boldly shows it as at 97 Kelvin's compass guide is the magnetic pole indicated precisely. But in all of these admirable charts an area of magnetic verticity, or polar area, is shown.

## Variations Observed.

Amundsen last summer told me that he plain, and in April this year Shackleton told me that Dr. Mawson, in charge of his south magnetic party, had observed an area in the Antarctic of fourteen miles radius, or twenty-eight miles di-

The perturbations of the magnetic nee-dle daily, monthly, annual, periodical and in declination, variation and translation, agree with axial and orbital novements of the solar system-the sun, the moon, the earth, the other planets and the hemisphere of sunlight in the

If we extend the ecliptic or plane of the orbital path of the earth around the sun ecliptic. and assume that it divides our solar sysem into two hemisphes we find that of the earth is inclined to this plane 23 know the magnetic saturation of the plane 7 degrees and 20 minutes, the axis degrees 27 minutes 14 seconds, the axis moon and the planets we could fix our of the moon is inclined to this plane 1 magnetic meridians and parallels as

degree 32 minutes 9 seconds. need not consider the inclination of the

south Atlantic to a little north of Cape and the translation of the geographical Guardifui; thence across the Indian ocean netism of the earth.

It is this last arc to the southward that the material energized. gives us one key, for this indicates an attempt to describe an elliptical curve on a sphere, as if the greater energy exerted on the earth by the sun at perihelion were thus mysteriously charted. This is the magnetic equator as it is charted. The charting is not quite correct, since t is compiled from data obtained on different dates, and it should be compiled from data taken simultaneously along

the line in at least one day. If you take a rod of steel and place it inside a spiral coil of copper wire and who died September 11, 1909, as filed by then pass a current of electrification the state transfer tax appraiser yesterday, through the copper wire you will magnet- shows that he left an estate, consisting of ize the steel rod. If this is done away from other magnetizing influences you 414. will get a simple magnetic state in the steel rod, depending on the kind of steel in the rod, the amount of electrification passed over the copper wire, the time occupied and other conditions. What you do with the steel rod and the copper wire the sun is daily doing to the earth. The copper coil is a helix. If you trace he path of the sun's vertical rays, the rays of greatest energy, on the surface of the earth you will find that this makes a spiral coil about the earth. It begins at perihelion, in the tropic of Capricorn, January 1, and winds northward to the tropic of Cancer, July 1, when it turns southward and winds back again to the tropic of Capricorn. There are 365 winds in all. In other words, the sun is and has been for millions of years doing on a gigantic scale to the earth what you have done for a few moments to the steel rod, with this difference, that it is a globular structure instead of a rod that is being affected. If while you are conducting your experiments with the rod there be in the room other magnetized or magnetizable objects each of them will affect the magnetization of the rod according to their size, permeability and distance from the rod.

## Similar Effect Produced.

This is what happens in a way with the earth. The solar system is the room in which the operation is done, and it has its own magnetic state, which affects the rod. The helix of copper wire, or rather the current passed over it, is the helical path of the sun around the earth. The atmosphere of the earth represents the insulation of the copper wire. The rod represents the earth itself, and the land and water on its surface the variation in atomic structure in the rod (you can substitute aglobe of metal for the rod if you prefer, as I do in demonstration), and the moon and the other planets of the solar system are repre-

sented by other magnets in the room of our experimentation. Now, if instead of a fixed room, fixed helix, a fixed rod or globe and fixed extra magnets you assume all to be in a state of motion while the experiment is going on and you also assume that the polarity of all vary you



\$1 Kimonos.

are made of pretty figured lawns, cut

good and full; per-

fectly made; not over

STORE CLOSES AT 5 O'CLOCK TOMORROW EVENING. 515 517

SCREENS AWAY	DOWN!
\$1.00 Screen Doors	69с
\$1.49 Screen Doors	98c
\$1.75 Screen Doors	\$1.39.
\$2.25 Screen Doors	\$1.89
39c Window Screens, 24 inches high	27c
39c Window Screens, 24 inches high 50c Window Screens, 30 inches high	29c

# EVER NEW AND GREATER BARGAINS IN THE YEAR'S MOST SENSATIONAL STOCK CLEARANCE=READ TOMORROW'S NEWS



MENS PERCALE SHIRTS WITH separate cuffs; not all sizes. Selling at MEN'S PERCALE AND MADRAS Shirts, in all sizes. Selling at 75c. 38c WOMEN'S RIBBED VESTS, NEATLY lace trimmed. Sold at 15c always. Sale 9c

MEN'S BALBRIGGAN UNDERWEAR, selling at 50c; all sizes. In the Clean 35c Sweep at ...... WOMEN'S RIBBED VESTS, IN ALL sizes. Sold at 10c usually. For the Clean 5c MEN'S RIBBED UNION SUITS, SELLing up to \$1. Special sale price......... 49c

MEN'S GENUINE PRESIDENT SUSpenders; sold by all stores at 50c. Sale MEN'S BRIGHTON LISLE GARTERS; superior quality. In the Clean Sweep



graphic pole. In neither the chart of the Choice Cugar-cured Hams.....19c Baked Beans, tomato sauce, large cans.10c Pickles, large 15c bottles..... 77/8c Quaker Puffed Wheat ...... 9c degrees west and 72 degrees north. On Olive Oil, I qt., guaranteed............69c Chalmers' Jelly Powder..... 4½c Macaroni and Spaghetti, 10c pkg...... 5½c Chipped Beef, 25c cans...... 15c Sardines, smoked or in tomato sauce...... 121/20 Cottolene, 2-lb. pails...... 28c

Royal Salad Dressing, 25c bottles...... 19c

Thompson's Borax Soap, 7 for...... 25c

Best Elgin Creamery Butter ..... 31e

Tomatoes, "Matchless" brand...... 5c

Four Great Clean Sweep Offerings in Women's Wear

A remarkable offering of Women's Skirts in fine linenes, Que linens, natural linens; all the latest gore effects; also full pleated styles. These skirts are made in the full sizes; perfectly made and in all sizes. Every skirt is worth \$3.00.

\$5 to \$6.98 One-piece Dresses . . . . . (P) (C)

Rich and pretty samples in Women's One-piece Dresses; the materials are fine Anderson ginghams, satin stripe elaines, chambrays, linenes, percales, etc.; low neck and high neck styles; these dainty and pretty dresses are worth \$5.00 to \$6.98.

Women's Fine White Lingerie Dresses, with tunics of finely tucked lingerie cloth; dainty effects in lace and insertion through. out the entire dress; these are all \$7.00 Dresses, and are down to nearly half price for Friday-\$3.95.

\$8 Black Silk Tissue Dresses . . . .

One-piece Dresses of the scarcest of all materials; black silk finish tissue with white figures, ring dots, etc.; square necks of all silk lace; short sleeves finished with pleated lace ruffle; all sizes. Regularly these dresses are selling at \$8.00.

# At Exactly Half Price

It's easily the big feature of the Clean Sweep Sale—every Man's Suit and every Young Man's Suit in the store going out AT HALF THE PRICE IT IS MARKED! No exceptions to this rule-every suit goes except the blue serges. Buy them this way-

\$12.50 \$6.25 Suits..\$6.25



WOMEN'S SILK HOSE-WOMEN'S FAMOUS Onyx Brand Silk Hose with lisle tops, double toes and heels; every pair guar- 49c WOMEN'S \$1.25 SILK HOSE-WOMEN'S PURE Thread Silk Hose with lisle tops and toes; plenty of all sizes. Sold at \$1.25 usu-

MEN'S SEAMLESS HOSE, IN BLACK MEN'S BLACK SEAMLESS HOSE, in all sizes. Sold at 15c. Sale price, 7 2 C MEN'S FINE SILK-PLATED HOSE, in all sizes. Sold at 75c. In the Clean 35c

WOMEN'S MERCERIZED LISLE Hose, in various colors. Sell at 25c always... 14C WOMEN'S BLACK SEAMLESS HOSE, selling at 15c. For the Clean Sweep Sale...



# Astonishing Clean Sweep Bargains in Boys' Wear

WASH SUITS.

Children's Wash Suits in the Russian blouses, sailor blouses, etc.; plain white, linens, chambrays, galateas; sizes 21/2 to 9 years-

\$2.00 Suits.... 69c \$2.50 Suits.... 97c \$3.50 Suits.....\$1.47 \$5.00 Suits.....\$1.97

Boys' Wool Suits in the double-breasted style; each suit with 2 pairs knickerbocker pants; \$1.50

Children's Novelty Suits, 21/2 to 10 years; Russian and sailor blouses. Sold up to \$5.00. Sale price...... \$1.89

Boys' Wool Suits in doubreasted and Norfolk styles; 5 to 17 years. Sell \$2.98 at \$5.00. Sale price

Boys' 59c Wool Knickerbocker Pants 39c Boys' \$1.00 Khaki 39c Knee Pants......

Boys' 25c Blouse Waists at ..... 12 22c



## WAISTS UNDER-

Three surpassing bargains for tomorrow in the Waists and Underskirt departments. Each one a crowd-bringer.

Any \$1.00 Waist........ 69c sold at \$1.00; many low and high neck styles. Any

\$2.00 Lingerie Waists. . . . 98c White Lingerle Waists; some have embroidered collars and cuffs; Dutch necks.

Featherbloom Underskirts. 59c bloom Petticoats, in all sizes. Sold at \$1.00 always.

tion with regard to the magnetism of the earth and how it is constantly changing. Now to go back to the earth's magnetic equator which I have been structured. magnetic equator, which I have been a some pains to previously describe. I loes not agree with either the geographical equator or the girdle of the Were the surface of the earth, all land or all water, or were the land and water hemispheres equalthe geographical equator, and did we

The epochal swing of variation will axes of the planets, since the magnetic yet show us the true actual motion effect of the planets is small and the of the sun in our solar system and major demonstrations will include the may enable us to compute its orbit, for The magnetic equator is a girdle of the planets, while the lesser perturbations earth, partly north and partly south of may be forecasted with precision by the geographical equator, on which the consideration of the elements of the house of commons yesterday by a vote north and south seeking ends of a mag- motion, axial and revolutionary, of the of 410 to 84. The debate was an emnetized bar are equally acted on by mag- planets. There are other factors of bittered one, and there were street demnetized bar are equally acted the Church as the precession of the onstrations outside the house of parlia- Protestant Reformed Church as by law Brazil, we will find the magnetic equator equinoxes, the earth's polar nutation, to sweep sharply northwest across the the changing obliquity of the ecliptic

toward the geographical equator. It con- of the various bodies in the solar sys- Church was not singled out for repudia-In the variation of the axis of motion little east of the 180th meridian, sweeps the earth. Magnetism and electrificasoutherly to a point on the west coast of tion are twins. They are the same South America north of Callao, and from energy in different manifestation and member of the Protestant church as by there makes an arc across South America | their manifestation depends on the cor- law established in England." puscular structure and vibrations of

**ESTATE WORTH \$1,707,414.** 

Southern Express Company President Left Valuable Property. NEW YORK, July 28 .- An appraisal of

the estate of Michael J. O'Brien, presipersonal property only, valued at \$1,707,-

Non-Conformist Revolt Succeeds—Reference to Established Church Eliminated.

Palmas, on the west coast of Africa. axis, all too technical to be considered 28 by a vote of 383 to 42. It provided Thence it sweeps across Africa to Cape here, but which all affect the mag- that the declaration to be so changed clause "and declare that I am a faithful as by law established in England."

> declaration in this way resulted in an now been removed and that the bill will extraordinary storm of criticism, and the survive the committee stage and be acold simile of the hornets' nest has never cepted by the house of lords without Kingdom, except the Roman Catholics. laration proposed. The non-conformists vote against the government unless these four words were eliminated. An amendment to the bill eliminating the words was proposed by Silvester Horne.

Religious Paper's Comment.

ON THE KING'S OATH

een better applicable than in this case. Every religious party in the United was up in arms against the form of decobjected to the qualification "as by law established." and pledged themselves to

"Mr. Silvester Horne is getting suppor from most unexpected quarters for his

accession oath the clause binding the sovereign to membership of the Estabished English Church. It finds favor also in the eyes of Scottish Presbyterians, whose pride it has hitherto been that when the king crosses the Tweed he becomes a Presbyterian.' Sir R. W. Perks, Bart., M. P., one of he most influential non-conformists in England, strongly protested against the gathered near the house of parliament, nimself to be a Protestant. It is quite and the government's intention was ananother to say that he is a member of nounced the ultra-churchmen were up in the established church.' The Guardian, organ of the Anglican Catholic form of the declaration. Church, said the Roman Catholics were

"They would," the Guardian added, "natestablished in England.' That would be

words "I am a faithful Protestant" for houses are infested with the little hoptoward the geographical equator. It con- of the various bodies in the solar system of the words offensive to the words "and declare that I am a ping pest. pines, crosses the geographical equator a the variation of the magnetic state of the Catholics the bill substituted the faithful member of the Protestant Church

Acceptable to the Lords.

further trouble. Nevertheless, there are

the simple course of dropping the declaration altogether, adding: "It is obviously offensive to the Roman Catholics: it is certainly superfluous as a defense of ceive \$5,000 a year.

Carney has been in San Francisco for the preparing a common ground on which a cide whether such copy should be furnished," and declares that in giving the course of dropping the declaration altogether, adding: "It is obviously offensive to the Roman Catholics: plant, effective August 1, and is to renished," and declares that in giving the course of the president of The Christian World, one of the most it is certainly superfluous as a defense of ceive \$5,000 a year.

amend it without offending either nonamendment to eliminate from the new sponsible; it has taken in hand a difficult and thankless task, which yet needs per forming. I for one think that personal preferences should be dropped, and the government supported by all who desire

to cleanse the good name of English Protestantism from the scandal of religious intolerance. During the discusion in the house of commons several anti-Catholic societies proposed form of declaration. "It is," and a number of "No Popery" placards he said, "one thing for the king to declare were displayed. When the debate began arms and joined hands with those who desired the retention of the original anti-

RICHMOND'S PLAGUE OF FLEAS. urally be delighted to see parliament de-Virginia Capital.

RICHMOND, Va., July 28.-An army of common little fleas has captured the Confederate capital and groans are

The health departments explain the plague due to the hot spell, and say that the insects will disappear when a

which is given a sulphur bath daily still possible difficulties, the amendment The party coaxes the dog to his home and romps through the house every day, the canine carrying out fleas innumerable on every trip, which are ed, but that the board would sit daily janitor of St. ohn's parochial school, their employers. In general, the strikers At the end of a lengthy letter to the disposed of in the sulphur bath.

Henry Male of Davis, W. Va., who ernment has not seen its way to propose entered the employ of the pulp mill at

PETITION OF PROPERTY OWNER OF CHEVY CHASE.

Claudian B. Northrop Seeks Permission to Inspect Record of the Tax Assessors.

Special Correspondence of The Star ROCKVILLE, Md., July 28, 1910.

In his petition Mr. Northrop states

that upon being notified recently of the

amount at which his property had been assessed he communicated with the trustees and clerk, asking that he be allowed to inspect the report of the asa copy of the report at his expense; but from July 11 to July 21 to hear com- who is accused of the murder of Alma have demanded better working conditions. Chevy Chase which provides that the surrounded in this city, and his capture In spite of the admitted difficulty in clerk shall not furnish a copy of any is the question of only a few hours.

president such arbitrary powers the ordinance is improper and illegal.

Judge James B. Henderson has signed an order fixing August 12 as the date

HOPE OF ENDING STRIKE

TO REPAIR BURST GUN. New Breech Block to Be Sent to Fort Monroe.

rozier, chief of ordnance, for the repair of the twelve-inch gun of Battery De Russy at Fort Monroe, the breech block of which blew out last Thursday and killed eleven soldiers. The projectile which remained in the gun will be shot out. A new breech block and firing safety mechanism will be obtained from early settlement of the garment makers' the Watervliet arsenal in New York. more satisfactory safety device than that 50,000 workers and demoralized the wom "I doubt if it is possible to obtain a already in use," said Gen. Crozier. "The en's clothing trade for several weeks fact that the failure of this device on past, appeared bright today, with the ported is itself proof of the safety of the

Orders have been issued by Gen.

mechanism. There may have been acspect the returns of the tax assessors of cidents in firing, but the device has always before operated. In fact, on dum- from the Cloak, Suit and Skirt Manufacmy charges attempts have been made to the primer prematurely, but the safety device has always performed its function. Because it has failed this once is no indication that it is unsafe or side over the conference, and readily con-

ON TRAIL OF WENDLING.

Alleged Slayer of Girl Said to Be in

SAN FRANCISCO, Cal., July 28 .- Ac-The petition cites an ordinance of wealthy brewer of the Kentucky city, is union organizations.

DISCUSSING CLAIMS OF NEW YORK GARMENT MAKERS.

Meeting of Conferees Representing Both Sides of the Controversy. L. D. Brandeis Presides.

was asked to come from Boston to preference reached a successful conclusion. The negotiations, which lasted over a

## MR. DINGBAT DEMANDS HIS RIGHTS FROM THE FAMILY UP STAIRS---By Geo. Herriman.

